



087318

Dy...
276

REPORT TO THE CONGRESS

Examination Into The Control
Over Procurement, Use, And
Disposition Of Magnetic
Computer Tape In The
Department Of Defense B-164392

FILE

*BY THE COMPTROLLER GENERAL
OF THE UNITED STATES*

SEPT. 18. 1961



COMPTROLLER GENERAL OF THE UNITED STATES
WASHINGTON, D.C. 20548

B-164392

To the President of the Senate and the
Speaker of the House of Representatives

Here is a report on our examination into the control over procurement, use, and disposition of magnetic computer tape in the Department of Defense.

Copies of this report are being sent to the Director, Bureau of the Budget; the Secretary of Defense; the Secretaries of the Army, the Navy, and the Air Force; and the Administrator, General Services Administration.

James B. Stacks
Comptroller General
of the United States

RECOMMENDATIONS OR SUGGESTIONS

GAO recommended that the Secretary of Defense consider establishing:

- A uniform method of computing magnetic tape requirements,
- An overall policy pertaining to the control and use of magnetic tape maintained at data processing installations, and
- A policy requiring the consolidation of tape requirements on a Defense-wide basis.

AGENCY ACTIONS

The Office of the Secretary of Defense has taken action to screen tape for reuse and has agreed to consider consolidating tape procurements throughout the Department. It has also agreed to conduct studies on the need for:

- A uniform method of computing computer tape requirements and
- Guidance for the control and use of tape maintained at data processing installations.

ISSUES FOR FURTHER CONSIDERATION

None.

LEGISLATIVE PROPOSALS

None.

D I G E S T

WHY THE REVIEW WAS MADE

At June 30, 1967, the Federal Government operated about 3,700 computers at various locations throughout the world. To serve its computers, the Government has accumulated more than 10 million reels of magnetic tape valued in excess of \$200 million.

The Department of Defense's inventory of magnetic tape consists of over 6 million reels valued at about \$125 million--over 60 percent of the total Government-wide. Because of the size of this expenditure, the General Accounting Office (GAO) reviewed the practices of the Department for the purchase, use, and disposition of this tape.

FINDINGS AND CONCLUSIONS

A fundamental need exists for the Department of Defense to centralize its management of magnetic tape. Although the Department of Defense has generally established centralized controls over its diverse automatic data processing (ADP) operations, it has, in the opinion of the GAO, given inadequate attention to similar controls over its vast magnetic tape inventory.

At the time of GAO's examination, the Air Force was the only service that had established centralized management of magnetic tape activities.

Local military commands have been:

- Computing tape requirements without adequate knowledge of the quantity or condition of tape in inventories (p. 7),
- Procuring magnetic tape with little regard to quantity discounts and other advantages of centralized procurement (p. 8), and
- Accumulating large quantities of used tape without testing or attempting to rehabilitate it for possible further use (p. 12).

In some cases, no specific instructions have been established for disposing of unserviceable tape or for reporting and screening serviceable excess tape. (See p. 20.)

Tear Sheet

SEPT. 18, 1968

C o n t e n t s

| | <u>Page</u> |
|--|-------------|
| DIGEST | 1 |
| INTRODUCTION | 3 |
| BACKGROUND | 3 |
| FINDING AND RECOMMENDATION | 6 |
| Need for central management of magnetic tape used in automatic data processing operations | 6 |
| Computation of requirements | 7 |
| Acquisition of magnetic tape | 8 |
| Army acquisition of magnetic tape | 9 |
| Navy acquisition of magnetic tape | 10 |
| Defense Supply Agency acquisition of mag- netic tape | 10 |
| Air Force acquisition of magnetic tape | 11 |
| Cleaning and rehabilitation of magnetic tape | 12 |
| Cleaning and rehabilitation of magnetic tape in the Air Force | 12 |
| Cleaning and rehabilitation of magnetic tape in other military agencies | 14 |
| Control over utilization of magnetic tape | 15 |
| Control over utilization of magnetic tape by the Army | 16 |
| Control over utilization of magnetic tape by the Navy | 17 |
| Control over utilization of magnetic tape by the Defense Supply Agency | 18 |
| Control over utilization of magnetic tape by the Air Force | 19 |
| Disposition of magnetic tape | 20 |
| Disposition of magnetic tape by the Army | 20 |
| Disposition of magnetic tape by the Navy | 21 |
| Disposition of magnetic tape by the De- fense Supply Agency | 22 |
| Disposition of magnetic tape by the Air Force | 22 |
| Department of Defense comments and our con- clusions | 23 |
| General Services Administration comments | 25 |
| Recommendation | 25 |

APPENDIXES

Appendix Page

| | | |
|--|-----|----|
| Principal officials of the Department of Defense, the Departments of the Army, Navy, and Air Force and the Defense Supply Agency responsible for the administration of activities discussed in this report | I | 29 |
| Letter dated March 16, 1968, from the Assistant Secretary of Defense (Installations and Logistics) to the General Accounting Office | II | 32 |
| Letter dated March 11, 1968, from the Acting Administrator, General Services Administration, to the General Accounting Office | III | 35 |

D I G E S T

WHY THE REVIEW WAS MADE

At June 30, 1967, the Federal Government operated about 3,700 computers at various locations throughout the world. To serve its computers, the Government has accumulated more than 10 million reels of magnetic tape valued in excess of \$200 million.

The Department of Defense's inventory of magnetic tape consists of over 6 million reels valued at about \$125 million--over 60 percent of the total Government-wide. Because of the size of this expenditure, the General Accounting Office (GAO) reviewed the practices of the Department for the purchase, use, and disposition of this tape.

FINDINGS AND CONCLUSIONS

A fundamental need exists for the Department of Defense to centralize its management of magnetic tape. Although the Department of Defense has generally established centralized controls over its diverse automatic data processing (ADP) operations, it has, in the opinion of the GAO, given inadequate attention to similar controls over its vast magnetic tape inventory.

At the time of GAO's examination, the Air Force was the only service that had established centralized management of magnetic tape activities.

Local military commands have been:

- Computing tape requirements without adequate knowledge of the quantity or condition of tape in inventories (p. 7),
- Procuring magnetic tape with little regard to quantity discounts and other advantages of centralized procurement (p. 8), and
- Accumulating large quantities of used tape without testing or attempting to rehabilitate it for possible further use (p. 12).

In some cases, no specific instructions have been established for disposing of unserviceable tape or for reporting and screening serviceable excess tape. (See p. 20.)

RECOMMENDATIONS OR SUGGESTIONS

GAO recommended that the Secretary of Defense consider establishing:

- A uniform method of computing magnetic tape requirements,
- An overall policy pertaining to the control and use of magnetic tape maintained at data processing installations, and
- A policy requiring the consolidation of tape requirements on a Defense-wide basis.

AGENCY ACTIONS

The Office of the Secretary of Defense has taken action to screen tape for reuse and has agreed to consider consolidating tape procurements throughout the Department. It has also agreed to conduct studies on the need for:

- A uniform method of computing computer tape requirements and
- Guidance for the control and use of tape maintained at data processing installations.

ISSUES FOR FURTHER CONSIDERATION

None.

LEGISLATIVE PROPOSALS

None.

INTRODUCTION

The General Accounting Office has examined the policies, procedures, practices, and controls used in the management of magnetic computer tape inventories at selected Department of Defense data processing installations. Our examination was made pursuant to the Budget and Accounting Act, 1921 (31 U.S.C. 53), and the Accounting and Auditing Act of 1950 (31 U.S.C. 67).

Our examination was performed during the period April through September 1967 at the headquarters level of the Departments of the Army, Navy, and Air Force and at the Army Aviation Materiel Command, St. Louis, Missouri; the Navy Aviation Supply Office, Philadelphia, Pennsylvania; the Sacramento Air Materiel Area, McClellan Air Force Base, California; and the Defense Industrial Supply Center, Philadelphia, Pennsylvania. In addition, we obtained information from the Office of the Assistant Secretary of Defense (Installations and Logistics) and at the Defense Supply Agency. Our examination was limited primarily to matters apparently needing corrective action and it therefore did not extend to all aspects of managing magnetic computer tape.

Internal audits performed by the Army Aviation Materiel Command's Inspection and Evaluation Office; the Naval Area Audit Service, Philadelphia; the Air Force Auditor General; the Defense Industrial Supply Center's Internal Review Division; and the Defense Supply Agency's Philadelphia Area Audit Office have not included the matters covered by this report.

BACKGROUND

As of June 30, 1967, the Federal Government was operating about 3,700 computers at various locations throughout the world. The General Services Administration has reported that it cost the Government about \$1.5 billion in fiscal year 1967 to purchase, lease, maintain, and operate its automatic data processing equipment. A portion of this expenditure was for magnetic computer tape.

In October 1965, the Administrator of General Services Administration (GSA) was given Government-wide authority to coordinate and provide for the economic and efficient acquisition and maintenance of all general purpose automatic data processing equipment and related supplies, including magnetic computer tape. In July 1967, representatives of the GSA testified in congressional hearings on data processing management in the Federal Government that, on the basis of the best information available, over 10 million reels of magnetic tape were either in use by the Government or in storage, which represented an investment of over \$200 million. On the basis of information obtained from various sources, it appears that the Department of Defense has an investment in magnetic tape of about \$125 million. In fiscal year 1967 an estimated one million reels of tape were procured by the Government.

Prior to March 1968, the Department of Defense data processing installations, although not required to do so, procured magnetic tape through Federal Supply Schedules (contracts) negotiated by GSA with certain vendors engaged in the manufacture and/or sale of magnetic tape. The terms, conditions, and warranties of the contracts with tape vendors were similar in nature and usually offered quantity discounts. The data processing installations also purchased tape by competitive bid and sole-source, direct purchase. In March 1968, GSA established a Government-wide procurement program. Under this program all agencies, including the Department of Defense, are now required to purchase tape solely through the Federal Supply Schedules.

Magnetic tape, because of its composition, is susceptible to damage and deterioration which results in tape failures and recording errors. Failures and errors are caused and/or influenced by such factors as tape quality, wear characteristics of the tape during processing, performance characteristics of equipment which can cause damage to the tape, and accidental operator damage.

The useful life of magnetic tape is dependent upon the time the tape remains free from flaws and other damage. Normally, the tape can be used again and again; but, once it begins to accumulate flaws or is damaged, its usefulness decreases. The Air Force has reported that studies and

tests indicate that a reel of tape of the type which constitutes most of the Government's tape inventory can be used from 180 to 200 times before it deteriorates to a degree where it must be disposed of. Its useful life, however, can be extended considerably through the use of preventive maintenance, including periodic cleaning and rehabilitation.

The Government is currently procuring low-cost, high-quality tape which may have a longer useful life than the tape now in Government inventories. We believe that, because of its magnetic nature, it is subject to the same flaws and damage as other magnetic tape and that its useful life can be extended through periodic cleaning and rehabilitation.

The principal officials of the Department of Defense; the Departments of the Army, Navy, and Air Force; and the Defense Supply Agency responsible for the administration of the activities discussed in this report are listed in appendix I.

FINDING AND RECOMMENDATION

NEED FOR CENTRAL MANAGEMENT OF MAGNETIC TAPE USED IN AUTOMATIC DATA PROCESSING OPERATIONS

There is a need for central management control over the computation of requirements, acquisition, utilization, and disposition of magnetic tape used in automatic data processing operations within the Department of Defense. The Office of the Secretary of Defense and the military departments have established offices to control activities related to automatic data processing operations in their respective departments, but a magnetic tape inventory estimated to have a value of about \$125 million has accumulated in the Department of Defense without central management control. Although some consideration has been given to central procurement of tape on a departmental level, it is our opinion that the problem of central management of all tape activity has not received adequate attention.

At the time of our examination, local commands, in our opinion, were computing requirements without adequate knowledge of the quantity or condition of magnetic tape in inventories and were procuring magnetic tape with little regard to quantity discounts and other advantages that might be available through centralized procurement. We believe, however, that the Government-wide procurement program established by GSA should preclude further decentralized procurements of magnetic tape.

In addition, we found that the local commands were accumulating large quantities of used tape without testing or attempting to rehabilitate it for possible further use, either locally or in other Department of Defense data processing installations. We also noted that, in some cases, no specific instructions had been established for disposing of unserviceable tape or for reporting and screening serviceable excess tape.

Details of our finding follow.

Computation of requirements

Our examination indicated that there is a need for establishing a uniform method of computing magnetic tape requirements within the Department of Defense. We found that the methods being used for computing tape requirements differed not only by military department but also by activities and installations within each department. At each of the locations visited by us, we reviewed the procedures being used to compute tape requirements and found that these procedures were inadequate for arriving at a realistic estimate of the quantity of tape that would be needed to fulfill known or anticipated future requirements.

In some instances, tape requirements were being estimated without adequate knowledge of the quantity or condition of tape in inventory and without an attempt to determine whether any of the tape laid aside for disposal could, in fact, be cleaned and reused.

Our work at the Army Aviation Materiel Command, the Navy Aviation Supply Office, and the Defense Industrial Supply Center revealed that no formal or uniform guidelines pertaining to the computation of tape requirements had been received from higher authority. Each of these activities employed a similar method and considered similar factors in computing requirements, i.e., the number of reels of tape declared unserviceable during the preceding year, the new or additional jobs to be undertaken, and proposed changes in equipment.

Although we were advised that the above factors were being considered in computing tape requirements, we were unable to verify either the accuracy of this information or the reasonableness of the quantitative computations because details supporting the computations, as well as usage records and adequate inventory records, were not maintained.

The Air Force Logistics Command (AFLC) established policies and procedures for computing magnetic tape requirements in September 1965. The stated purpose of these procedures was to ensure that annual expenditures for magnetic tape reflected valid, defensible requirements based upon a systematic evaluation of need. We found, however, that, even

though AFLC had established procedures for computing tape "buy" requirements, tape purchases were being made at the Sacramento Air Materiel Area (SMAMA) without first making requirements computations. We were informed that quantities ordered were based primarily on an educated guess after considering such things as unserviceable tape which needed to be replaced, new programs, and recommendations made by the systems analyst.

As part of its Government-wide tape procurement program, GSA requires agencies to consolidate requirements on an agencywide basis to the maximum extent feasible when the effort will result in lower prices to the Government. We have been advised by GSA officials that this requirement does not include the development of procedures for determining requirements, since such determinations are the responsibility of the agencies.

Acquisition of magnetic tape

The Office of the Secretary of Defense, as well as each of the military departments, has for a long time recognized the economic advantages of procuring magnetic tape on a centralized or consolidated basis. However, no action had been taken at the date of our examination to establish any Defense-wide policy or promulgate any instructions regarding the procurement of tape even though the Department's annual cost of tape involved an estimated \$14.5 million. As a result, local activities within the military departments and the defense agencies were acquiring tape without taking full advantage of the savings and discounts available through quantity buying, preparation of uniform specifications, and other benefits inherent in centralized control and procurement.

In November 1962, the Office of the Secretary of Defense requested GSA to establish a study group to evaluate and develop improvements in the policy, procedures, and practices being utilized for the procurement of tape for Government use. The group, which was organized in September 1963, concluded in April 1965 that consolidation of magnetic tape requirements at the departmental level was both practical and economically desirable.

Since the completion of our examination, GSA has established a Government-wide program for the procurement of magnetic computer tape. It has competitively established prices, effective March 1, 1968, with two tape manufacturers for certain types of tape and is requiring that procurement of all such tape involving less than \$50,000 each be made from those manufacturers at the prices established by GSA. Procurements of such tape involving more than \$50,000 each and all other types of tape will be made by GSA.

Also, as part of the program, GSA is requiring Government agencies, including the Department of Defense, to develop procedures for consolidating tape requirements on an agencywide basis to the maximum extent feasible if they expect this action to result in significant price advantages to the Government. We have been advised by GSA officials that the extent to which tape requirements will be consolidated within the Department of Defense is the responsibility of the Office of the Secretary of Defense.

Army acquisition of magnetic tape

The Department of the Army, in 1961, considered establishing its own centralized procurement program. It postponed its efforts, however, because of the pending GSA-sponsored study. In February 1966--about 5 years after its initial consideration and after it became known that GSA had no immediate plan to establish a Government-wide procurement program--Army Materiel Command was assigned the responsibility for developing an Army-wide program. Since that time, the Army Materiel Command has submitted to Headquarters, Department of the Army, a number of proposed programs.

At the time of our examination, none of the programs had been accepted and the Army data processing installations were procuring magnetic tape locally. We were subsequently informed, however, that a program was implemented on June 22, 1968.

Navy acquisition of magnetic tape

At the time of our examination, the Department of the Navy did not have a centralized tape procurement program. However, the Naval Supply Systems Command (NAVSUP), which accounts for about 38 percent of the Navy tape requirements, had been consolidating requirements for all NAVSUP activities for more than 2 years. NAVSUP procured tape through open-end contracts awarded on a competitive basis or through the Federal Supply Schedule. We were informed that, during fiscal year 1968, NAVSUP awarded a contract for about 25,000 reels of tape to the lowest bidder among those vendors on GSA's Qualified Products List. Also, we were advised that NAVSUP used GSA tape specifications and had GSA provide for quality control.

We were advised by representatives of the U.S. Naval Station, Washington Navy Yard, that in fiscal year 1968 the Naval Station for the first time consolidated tape requirements for Navy activities in the Washington, D.C., area. We were also advised that the Naval Station awarded on a competitive basis, using GSA specifications, an open-end contract for about 25,000 reels of tape. That procurement contract accounted for an additional 38 percent of the Navy tape requirements for fiscal year 1968, and it should have resulted in considerable savings to the Government.

NAVSUP and the Naval Station did not consolidate their requirements for fiscal year 1968 although such a consolidation would most likely have resulted in lower unit prices. We were informed, however, that personnel at the Naval Station hoped to make such a consolidation in future buying. At the time of our examination, no effort was being made by the Navy to consolidate the balance of the Navy's tape requirements.

Defense Supply Agency acquisition of magnetic tape

The Defense Supply Agency (DSA) has established a centralized procurement program. The responsibility for the program was given to the Defense Electronics Supply Center in June 1966. At the time of our examination, however, the program was not fully operational.

Air Force acquisition of magnetic tape

The Department of the Air Force, at the time of our examination, was the only service that had established a servicewide procurement program. As a result of a study released in 1964, AFLC was designated as the central tape-procuring agency within the Air Force. As a part of the program, AFLC developed procedures for (1) gathering and consolidating using unit requirements, (2) ensuring quality control through testing newly acquired tape and comparing the results with specifications, and (3) financing payments.

The initial buy under this program was made in August 1965. AFLC awarded, on a competitive basis, open-end contracts to three tape vendors for 56,410 reels of tape at a cost of about \$900,000. The Air Force estimated that this procurement resulted in savings of about \$532,000, on the basis of the cost for procuring the same quantity of tape from the same vendors on a decentralized basis. AFLC made another procurement in February 1967 for 50,000 reels of tape at a cost of about \$785,000. The price negotiated and paid by the Air Force for this tape averaged about \$6.50 per reel less than the amount that would have been paid had the tape been procured in lesser quantities at prices shown in Federal Supply Schedules in effect at that time.

The Air Force's centralized tape procurement program dealt only with 1/2-inch tape, which represents about 90 percent of the Air Force's tape inventory. We found indications, however, that all procurements of 1/2-inch tape were not consolidated. For instance, at SMAMA we noted that, near the end of fiscal year 1966, the command purchased 3,050 reels of 1/2-inch tape locally through the Federal Supply Schedule at a cost of about \$84,000. Had these reels of tape been purchased under the existing AFLC contracts, costs of about \$32,000 could have been avoided.

Although all the military services and DSA, for some time and in varying degrees, have been involved in establishing servicewide or centralized tape procurement programs, progress in this area has lagged. The procurement deficiencies noted in our examination, however, should be corrected by the Government-wide tape procurement program established by GSA.

Cleaning and rehabilitation of magnetic tape

At the time of our examination, the Office of the Secretary of Defense had not issued any uniform guidance concerning the need for and the economies attainable through cleaning and rehabilitation of magnetic tape. As a result, the military departments and other components of the Department of Defense either have established a conglomeration of attitudes toward tape rehabilitation or, for one reason or another, have taken no action in this direction. With the exception of Air Force officials who have established a servicewide program for cleaning and rehabilitating tape, responsible management officials in the Department of Defense seem to have given little consideration to the need for such a program even though significant savings appear to be available.

The life of magnetic tape will vary considerably depending on the tape quality and the extent of usage. As a general rule, however, a good quality tape will remain useful for an indefinite length of time if it is subjected to periodic cleaning and maintenance. We found that, except in the Air Force, the question of whether tape should be cleaned and reused or should be declared unserviceable and destroyed rested with the using activities and that these activities usually made little or no attempt to test or clean the tape before disposal. In some instances the inspection of the tape by local operating personnel formed the basis for a decision as to whether the tape was unserviceable.

Cleaning and rehabilitation of magnetic tape in the Air Force

The Air Force, in 1965, implemented a servicewide tape cleaning and rehabilitation program by establishing 16 regional rehabilitation centers and equipping them with leased machines to be used for inspecting, cleaning, and certifying tape as acceptable. Statistics obtained at Air Force Headquarters for the 3-month period ended August 31, 1966, indicate that about 86 percent of the number of reels of tape subjected to the Air Force cleaning and recertifying program were returned to service.

At the SMAMA center we found that the program was resulting in (1) the return to use of many reels of tape which might otherwise have been discarded, (2) the elimination of large numbers of unserviceable tapes from the inventory, and (3) the reduction of computer rerun time related to defective tapes. In addition, the center, through its inspection of newly procured tape, prevented the acceptance of large quantities that did not meet contract specifications.

During fiscal year 1967, the SMAMA center tested 25,162 reels of tape. Of this amount the center rehabilitated, certified, and returned to service 19,931 reels at an average unit cost of \$2.16. A comparison of the average unit cost of \$2.16 to rehabilitate a reel of tape with the unit price of ~~\$16.73~~ per reel paid by the Air Force in recent procurements indicates that substantial savings have been achieved under the total program.

Of the more than 25,000 reels of tape tested by the SMAMA center, 21 percent, or about 5,200 reels, were declared unserviceable and eliminated from the tape inventories. We were informed that the quantity of unserviceable tape was high because the quantity tested included a large number of used tapes that had been received from the phase-out of other Air Materiel Areas during fiscal year 1966 and because it was the first time that the SMAMA inventory was tested.

The criteria used to determine which tapes were unserviceable were established by AFLC and are intended for use Air Force-wide. Generally, the criteria are based upon a combination of the usable length of tape on the reel and the number of permanent errors detected during testing, i.e., errors which are not removable, such as creases, damaged edges, or holes in the oxide coating. When the number of permanent errors on a tape exceed the maximum allowable, which varies according to the length and type of tape, the tape is discarded. The application of these criteria assures the Air Force that only serviceable tape remains in the tape inventories.

The SMAMA data processing installation reports on lost computer time indicated that during fiscal year 1967 the

percentage of time used to rerun data because of defective tapes had been reduced. During the last half of fiscal year 1966, the installation's computers were used about 30,000 hours, which included 265 hours of rerun time caused by defective tapes, or about 0.9 percent of total computer usage. In the 5-month period from January through May 1967, the installation's computers were used 28,000 hours, which included 60 hours of rerun time caused by defective tapes or about 0.2 percent of total computer usage. Thus, the amount of computer rerun time caused by defective tapes was reduced by about 75 percent.

By projecting reductions in lost computer time through the remainder of 1967, we estimate that as much as \$27,000 of computer time may have been saved at SMAMA as a result of the rehabilitation program.

Cleaning and rehabilitation of magnetic tape in other military agencies

The Army, Navy, and DSA had not established uniform programs for the cleaning and rehabilitation of magnetic tape. We noted that, in some instances, local data processing installations had established procedures for cleaning and rehabilitating tape but that, due to excessive cost, inadequate equipment, and lack of trained personnel, the procedures were either limited to certain types of tape or discontinued. We also noted that in one instance an installation obtained cleaning and rehabilitation services from commercial sources at a cost less than that which would have been incurred had the work been done in-house.

Although the in-house cost of cleaning and rehabilitating the tape might seem prohibitive when performed on a local or singular basis, the experience of the Air Force shows that tape rehabilitation can be economically advantageous to the Government when the work is performed on a volume basis.

Control over utilization of magnetic tape

The Office of the Secretary of Defense has not established overall policy pertaining to the control and use of magnetic tape maintained at data processing installations. For the most part, the individual data processing installations have established procedures to control and account for tape in their libraries, but we believe that, in some instances, the procedures employed are inadequate and should be revised and made uniform.

The efficient and economical utilization of magnetic tape requires not only careful maintenance, rehabilitation, and inspection but also accurate and uniform control over the inventory of tapes on hand and in daily or periodic use. The need for maintaining adequate control over the tape in inventory and for ensuring efficient utilization of this tape becomes apparent when the quantity and cost of tape on hand in the Department of Defense is considered.

On the basis of information obtained from various sources, we estimate that the Department of Defense has an overall investment in magnetic tape of about \$125 million. At the time of our examination at four data processing installations, we found that the investment in tape at those installations totaled about \$2.6 million, as shown in the following schedule.

| <u>Location</u> | <u>Reels</u> | <u>Cost</u> |
|----------------------------------|---------------|--------------------|
| Army Aviation Materiel Command | 12,000 | \$ 450,000 |
| Navy Aviation Supply Office | 26,000 | 563,000 |
| Defense Industrial Supply Center | 13,000 | 712,000 |
| Sacramento Air Materiel Area | <u>33,000</u> | <u>937,000</u> |
| | <u>84,000</u> | <u>\$2,662,000</u> |

The Army, Navy, and Defense Supply Agency have not issued policy statements from the headquarters level concerning the establishment of uniform procedures and controls. In our opinion, procedures in effect at the using installations are generally inadequate for providing realistic management control. Information obtained on tape

utilization, at the locations visited by us, is set forth below by departments.

Control over utilization of magnetic tape by the Army

The Army Aviation Materiel Command (AVCOM) had a magnetic tape inventory in excess of 12,000 reels costing over \$450,000. The system used by AVCOM to control this inventory did not include the keeping of inventory or historical usage records.

We found that the only inventory control exercised by AVCOM over its tapes was through a tape-blanking system. The purpose of this system, however, was to provide AVCOM with a method of controlling data on certain reels of tape in order to determine when the reels would be available for reuse, rather than to provide AVCOM with a complete accounting of tapes on hand.

The tape-blanking system did not provide a time frame for performing specific functions; consequently, there was no assurance that reels of tape were being returned to the system on a timely basis. We found some reels that had been in a hold status since March 1962, although the data on the reels were not needed and the reels could have been blanked and returned to use.

In addition, we found that AVCOM had no effective controls over magnetic tapes that had been mailed out to other organizations. AVCOM maintained a register of tapes mailed out, and such tapes were also shown in an ADP listing used in the blanking system. As of April 21, 1967, the register showed 345 reels in a mailed-out status, 70 of which were not on the ADP listing. Also, 56 reels shown on the ADP listing as mailed-out were not so indicated in the register. Furthermore, 69 reels shown in the register or the listing as mailed out were on hand in the tape library. We were advised that AVCOM had no written procedures for controlling the mailing of tapes but that such procedures would be written and implemented.

Control over utilization of magnetic tape by the Navy

The Navy Aviation Supply Office had an inventory of about 26,000 reels of tape costing about \$563,000. We believe that the management system for controlling this inventory lacked adequate records to ensure proper control over and optimum utilization of the tapes. The system did not account for the frequency of magnetic tape usage or the number of unserviceable reels of tape. In addition, we found that perpetual inventory records were not being maintained and that there was a lack of control over the availability of tapes previously used for nonrecurring data processing jobs. The absence of such records and controls precludes the use of information for scheduling the reuse of available reels of tape and affects the accuracy of estimates of future tape requirements.

The Navy Aviation Supply Office accounted for tapes on hand through a consecutive numbering system. The data stored on magnetic tape were identified by a label attached to the reel of tape. The label contained a tape identification number to indicate the month and year that a reel of tape was initially placed in inventory and the total number of tapes placed in stock up to that time. We were informed that this numbering system had been initiated in September 1964 and that tapes in use prior to that date (about 11,000 reels) had not been assigned numbers because records were not available to show when they were first obtained. Also, no records were being maintained to account for unserviceable reels of tape removed from the inventory. The consecutive numbering system, therefore, did not account for all tapes on hand and was not an accurate means for controlling the Navy Aviation Supply Office's tape inventory.

The labels identifying the magnetic tape also specified the nature of information on the tape, the frequency of the run on which this information was used, and the date after which this information would no longer be required. We found that records were being kept on these tapes so that they could be scheduled for reuse. The Navy Aviation Supply Office, however, did not account for retention dates of tapes used for nonrecurring jobs, such as special project runs or test programs. The maintenance of such records

would provide better information as a basis for scheduling the reuse of magnetic tape.

Control over utilization of magnetic tape by the Defense Supply Agency

The Defense Industrial Supply Center (DISC) had a tape inventory of about 13,000 reels of tape valued at about \$712,000. To manage this inventory, the center had established tape library control procedures. Our analysis of these procedures indicated that they were adequate for determining the quantity of tapes on hand; but, in our opinion, they did not provide adequate information concerning tape condition, age, length, or usage.

DISC, in December 1966, established a serial numbering system for controlling its inventory of magnetic tapes. Under this system a serial number is assigned to each reel of tape as it is placed into use. The serial numbers are recorded on a print-out and cross-referenced to the manufacturer's serial numbers. The last number assigned, less the number of unusable reels disposed of, indicates the total number of tapes in the inventory. In addition to using the numbering system, DISC was maintaining a mechanized tape inventory listing which, according to the tape library procedures, contained all the necessary data required for maintaining a complete inventory of magnetic tapes in the library. We noted, however, that the listing was being supplemented by the preparation of manual records and physical inventories. In addition, the inventory listing did not provide information such as the age and condition of the tape, the number of times that the tape had been used, the length of the tape, or whether it had ever been damaged. This information appears to be essential for the proper management of tape.

The library procedures did not require that usage records be maintained for reels of tape in the inventory. We were informed that such records were not being kept because the information would not serve any useful purpose and because of the clerical problem involved in maintaining the records. We believe, however, that usage records are needed to provide DISC with statistics necessary for the development of replacement factors and for the scheduling of its tapes for cleaning and testing.

Control over utilization of magnetic tape by the Air Force

The Air Force is the only service which has issued policy statements from the headquarters level concerning the procedures and controls to be established at each of its using installations. Air Force Manual No. 171-9, chapter 12, titled "Acquisition and Management of ADPS Accessories and Supplies" sets forth policy guidance concerning (1) advanced planning of tape vaults, (2) methods of control over internal movements of tape reels, including methods of identification, i.e., internal and external, (3) methods of controlling environmental conditions, and (4) submission of excess tapes to the AFLC for redistribution.

SMAMA had a magnetic tape inventory of almost 33,000 reels of tape valued at about \$937,000. We noted that to control this inventory SMAMA had established a mechanized "Tape Management Data System" with the objectives of (1) managing all tapes in the inventory, (2) accounting for all tapes when out of the home library and those tapes on loan from other bases, (3) accomplishing the shipment and return of tapes locally and between libraries on- and off-base sites, (4) providing for automatic release date of tape on hold status, (5) maintaining a history record of each tape, and (6) preparing tape inventory reports.

We found that, for each tape in the SMAMA inventory, the system maintained a "master file," which, among other things, contained a record of the date when the tape was last used, the identification of the information on the tape, the number of days the information was to be held, and the release date after which the information need no longer be retained. This file also showed when the tape was put into service, the number of times it had been used, the length of the tape, and whether the tape had any record of being damaged. Also, SMAMA was required to report its inventory and excess tape to AFLC.

Our examination of the system indicates that it contains the essential elements for proper management of tape and that, through its proper application, efficient and economical utilization of tape can be obtained.

Disposition of magnetic tape

Only the Air Force has issued specific or uniform guidance concerning the disposition of magnetic tape. Data processing installations in the Army, the Navy, and DSA either have used different criteria in disposing of tape or have merely stored the tape designated as being unserviceable to await formal disposition advice from higher authority.

Disposition of magnetic tape by the Army

In some instances the manner in which tape was being determined to be unserviceable was, in our opinion, less than adequate. For example, at AVCOM we were informed that a reel of tape which causes numerous errors is disposed of without determining the extent of the errors on the tape. We were also informed that, in some instances, tape had been declared excess on the anticipation of errors occurring. Such tape was removed from the inventory and turned in as "excess--not usable at AVCOM" and declared unserviceable.

We were informed that AVCOM did not keep records on the quantity of unserviceable tape disposed of. "Turn-in" documents, however, indicated that, in fiscal years 1966 and 1967, AVCOM disposed of about 4,500 reels of tape having an original cost of about \$78,000. A notation on the turn-in documents stated that "*** the tape had no reasonable prospect of use, its repair or rehabilitation for use as a unit was impracticable, it had no value except for its basic material content, and that therefore, it was no longer repairable." We were subsequently informed that the tape had been disposed of because it was obsolete and that turn-in documents had been corrected to indicate that the tape was excess to AVCOM's requirements.

At the Property Disposal Branch of the Granite City Army Depot, through which AVCOM disposes of its excess tape, we were informed that 4,500 reels of tape had been stored in a warehouse and that the Depot planned to sell the tape as scrap on the basis of AVCOM's determination that the tape was excess to its needs.

We were informed at AVCOM that initially 4,700 reels of tape were to be disposed of but that 200 reels had been transferred to the Atomic Energy Commission for use by one of its contractors. We were advised that the contractor had tested the 200 reels of tape and found that 129 or about 65 percent were in good condition and that the tape was being used in the contractor's ADP operations. From the test performed, it appears that some of the 4,500 reels disposed of by AVCOM might have been in good condition and could have been used by other data processing installations.

At other installations visited by us, we also found that little or no consideration had been given to screening and excessing tape for possible cleaning and reuse by others. We noted an instance in which tape had been accumulated for disposal and another instance in which tape had been destroyed, without, we believe, adequate assurance that the tape either was unusable by others or could not be sold as surplus.

Disposition of magnetic tape by the Navy

At the time of our examination, the Navy Aviation Supply Office had accumulated an estimated 1,500 reels of un-serviceable tape which was occupying space in the computer room. We were advised by an official of the Navy Aviation Supply Office that that office had no guidance from higher echelons regarding the disposition of tape. Therefore, it suggested to the Naval Supply Systems Command that a disposal policy be formulated so that un-serviceable tape could be properly disposed of. The Navy Aviation Supply Office was informally advised to dispose of the tapes. Instead of taking disposal action, however, the Navy Aviation Supply Office transferred the tapes to warehouse storage to await formal disposition advice.

On June 28, 1967, the Naval Supply Systems Command advised the Navy Aviation Supply Office that no regulations existed which required screening of surplus/excess computer tape prior to its disposal and that immediate action should be taken to process the tape through the local disposal office. It also advised that future excesses should be reported to the Naval Supply Systems Command for screening with DSA and GSA. We were advised, however, that the Navy

Aviation Supply Office was reluctant to dispose of the tape because it believed that another use could be found for it.

Disposition of magnetic tape by the Defense Supply Agency

At DISC, we were informed that tape determined to be unusable was being destroyed. We found that, in 1966, 496 reels of tape costing about \$32,000 had been destroyed on the basis that the tape no longer met minimal operational standards. We were unable to verify whether the tape was in fact unusable at the time of disposal, but we examined disposal documents which indicated that most of the tape was destroyed because of its age and that no efforts had been made to determine whether the tape could be used by other data processing installations or whether it could be sold as surplus tape. We were informed by a Defense Supply Agency official that surplus tape was being sold through the Defense Surplus Sales Offices.

Disposition of magnetic tape by the Air Force

At SMAMA, we found that policies and procedures had been established regarding the disposition of unserviceable tape. We found that SMAMA identified unusable tape through its tape cleaning and rehabilitation operations, using criteria established by AFLC. Tapes declared unserviceable and defective reels were being disposed of through normal redistribution and marketing channels. Serviceable reels and reel cannisters were being retained to replace defective reels and cannisters. We were informed that unserviceable tape was purchased by the State of California.

Department of Defense comments
and our conclusions

We brought our finding to the attention of the Secretary of Defense in a preliminary report dated January 8, 1968. In that report we pointed out that a Government-wide system for central management of magnetic computer tape is feasible and should be considered for design and implementation at the earliest practical date but that, as a more immediate corrective step, the Secretary of Defense should give consideration to establishing Defense-wide control over the acquisition and use of tape.

In a letter dated March 16, 1968, (see app. II) the Assistant Secretary of Defense (Installations and Logistics) commented on our preliminary report. In his letter he stated that the Department of Defense (DOD) was in full accord with recent action taken by the GSA to initiate a central program for the competitive procurement of 800 BPI 1/2-inch magnetic computer tape and that his office looked with favor upon GSA's forthcoming revision to Subchapter E--Supply and Procurement--of the Federal Property Management Regulations, which would set forth procurement sources and programs for centralized procurement of all electronic data processing tape. He stated further that it had been concluded that the current GSA efforts had overtaken the need for further action to initiate a program for the centralized procurement of magnetic computer tape within the DOD.

We acknowledge that the central procurement program established by GSA has overtaken the need for the Department of Defense to initiate its own tape procurement program. We believe, however, that there is still a need for the Office of the Secretary of Defense to establish policy and issue instructions for consolidating tape requirements on a Defense-wide basis prior to purchasing tape through the Government-wide program. Such consolidation enables the Government to negotiate lower prices for lots larger than those presently provided for in the existing price schedules.

The Assistant Secretary of Defense (Installations and Logistics) advised us that DOD was working with GSA in developing a Government-wide program of tape cleaning and

rehabilitation and that DOD intended to continue working with GSA in the development of the program rather than initiate its own interim internal rehabilitation program.

The establishment of a Government-wide program of tape cleaning and rehabilitation is in accord with our belief that a Government-wide system for central management of magnetic computer tape is feasible. However, GSA has informed us that a decision to implement such a program is being held in abeyance pending an evaluation of the need for cleaning and rehabilitating the low-cost, high-quality tape that is now being procured through GSA.

We believe that the Government has a large enough investment in the magnetic tape in its inventory to warrant the continued use of the tape by data processing installations for some time to come. Therefore, it is our opinion that, even if GSA determines that the new tape would not be economically suited to a cleaning and rehabilitation program, the Assistant Secretary of Defense (Installations and Logistics) should consider establishing a program to clean and rehabilitate the large quantities of the older tape still in use.

The Department of Defense concurred in the need for a more positive program with respect to the screening and marketing of tape no longer needed by using installations. The Assistant Secretary of Defense (Installations and Logistics) informed us that action was under way to amend DOD Directive 4160.19, "Reutilization Screening of Automatic Data Processing Equipment," to formalize the requirement for reutilization screening of computer magnetic tape.

We believe that the action taken by the Assistant Secretary of Defense (Installations and Logistics) to formalize the requirement for reutilization screening of magnetic computer tape should result in improved control over the disposition of magnetic tape no longer needed by using installations. We shall consider the effectiveness of that action in our future reviews involving the management of automatic data processing operations.

General Services Administration comments

We also presented our findings to the General Services Administration on January 9, 1968, and requested any comments it might wish to make. The reply, dated March 11, 1968 (see app. III), stated that the General Services Administration agreed with the basic principle inherent in the report that magnetic tape is well suited to centralized management.

Recommendation

With regard to computing and consolidating the requirements and controlling the utilization of tape, we do not believe that the actions taken by the Office of the Secretary of Defense are sufficient to establish the central control needed for the management of magnetic tape within the Department of Defense. We therefore recommend that the Secretary of Defense consider establishing (1) a uniform method of computing magnetic tape requirements, (2) an overall policy pertaining to the control and use of magnetic tape maintained at data processing installations, and (3) a policy requiring the consolidation of tape requirements on a Defense-wide basis.

We discussed these items with officials in the Office of the Assistant Secretary of Defense (Installations and Logistics) on April 9, 1968. They agreed that a study should be initiated to determine whether uniform criteria for calculating magnetic tape requirements should be established. They also agreed that a study of the practices and procedures used by the military departments for utilizing and safeguarding magnetic tape should be initiated to determine whether instructions should be promulgated by the Office of the Secretary of Defense for uniform handling of magnetic tape by all military departments. Also, we were advised that consolidation of tape requirements on a Defense-wide basis would be considered.

We have been informed that we will be advised of the results of the studies to be made by the Department of Defense. We shall evaluate the results of these studies and any subsequent actions when we have been advised of them.

BLANK PAGE

26

APPENDIXES

BLANK PAGE

28

PRINCIPAL OFFICIALS
OF
THE DEPARTMENT OF DEFENSE
THE DEPARTMENTS OF THE ARMY, NAVY, AND AIR FORCE
AND THE DEFENSE SUPPLY AGENCY
RESPONSIBLE FOR THE ADMINISTRATION OF
ACTIVITIES DISCUSSED IN THIS REPORT

Tenure of office
From To

DEPARTMENT OF DEFENSE

SECRETARY OF DEFENSE:

| | | |
|--------------------|-----------|-----------|
| Clark M. Clifford | Mar. 1968 | Present |
| Robert S. McNamara | Jan. 1961 | Mar. 1968 |

ASSISTANT SECRETARY OF DEFENSE
(COMPTROLLER):

| | | |
|-------------------|------------|---------|
| Robert N. Anthony | Sept. 1965 | Present |
|-------------------|------------|---------|

ASSISTANT SECRETARY OF DEFENSE
(INSTALLATIONS AND LOGISTICS):

| | | |
|------------------|------------|-----------|
| Thomas D. Morris | Sept. 1967 | Present |
| Paul R. Ignatius | Dec. 1964 | Aug. 1967 |

DEPARTMENT OF THE ARMY

SECRETARY OF THE ARMY:

| | | |
|------------------|-----------|---------|
| Stanley R. Resor | July 1965 | Present |
|------------------|-----------|---------|

ASSISTANT SECRETARY OF THE ARMY
(FINANCIAL MANAGEMENT):

| | | |
|------------------|-----------|-----------|
| Eugene M. Becker | July 1967 | Present |
| W. Brewster Kopp | June 1965 | June 1967 |

PRINCIPAL OFFICIALS
OF
THE DEPARTMENT OF DEFENSE
THE DEPARTMENTS OF THE ARMY, NAVY, AND AIR FORCE
AND THE DEFENSE SUPPLY AGENCY
RESPONSIBLE FOR THE ADMINISTRATION OF
ACTIVITIES DISCUSSED IN THIS REPORT (continued)

Tenure of office
From To

DEPARTMENT OF THE ARMY (continued)

ASSISTANT SECRETARY OF THE ARMY
(INSTALLATIONS AND LOGISTICS):

Dr. Robert A. Brooks Oct. 1965 Present

DEPARTMENT OF THE NAVY

SECRETARY OF THE NAVY:

Paul R. Ignatius Aug. 1967 Present
Paul H. Nitze Nov. 1963 July 1967

ASSISTANT SECRETARY OF THE NAVY
(FINANCIAL MANAGEMENT):

Charles A. Bowsher Dec. 1967 Present
Charles F. Baird Jan. 1966 July 1967

ASSISTANT SECRETARY OF THE NAVY
(INSTALLATIONS AND LOGISTICS):

Barry James Shillito Apr. 1968 Present
Graeme C. Bannerman Feb. 1965 Apr. 1968

DEPARTMENT OF THE AIR FORCE

SECRETARY OF THE AIR FORCE:

Harold Brown Oct. 1965 Present

PRINCIPAL OFFICIALS
OF
THE DEPARTMENT OF DEFENSE
THE DEPARTMENTS OF THE ARMY, NAVY, AND AIR FORCE
AND THE DEFENSE SUPPLY AGENCY
RESPONSIBLE FOR THE ADMINISTRATION OF
ACTIVITIES DISCUSSED IN THIS REPORT (continued)

Tenure of office
From To

DEPARTMENT OF THE AIR FORCE (continued)

ASSISTANT SECRETARY OF THE AIR
FORCE (FINANCIAL MANAGEMENT):

| | | |
|--------------------|-----------|-----------|
| Thomas H. Nielson | Jan. 1968 | Present |
| Leonard Marks, Jr. | June 1964 | Dec. 1967 |

ASSISTANT SECRETARY OF THE AIR
FORCE (INSTALLATIONS AND
LOGISTICS):

| | | |
|-------------------|-----------|---------|
| Robert H. Charles | Nov. 1963 | Present |
|-------------------|-----------|---------|

DEFENSE SUPPLY AGENCY

DIRECTOR:

| | | |
|-----------------------------------|-----------|-----------|
| Lt. Gen. Earl G. Hedlund, USAF | July 1967 | Present |
| Vice Adm. Joseph M. Lyle | July 1964 | July 1967 |



ASSISTANT SECRETARY OF DEFENSE
WASHINGTON, D.C. 20301

SS

INSTALLATIONS AND LOGISTICS

16 MAR 1968

Mr. William B. Newman, Jr.
Director, Defense Division
General Accounting Office
Washington, D. C. 20548

Dear Mr. Newman:

Reference is made to your letter of January 8, 1968 which forwarded for review and comment a draft report entitled "Examination Into The Control Over Procurement, Utilization, and Disposition of Magnetic Computer Tape Within The Department of Defense." (OSD Case #2704)

The Draft Report states that although consideration has been given to central procurement of tape on a departmental level, the problem of central management of all tape activity has not received adequate attention. The report indicates that at the time of the GAO examination, local commands were (1) computing requirements without knowledge of the quantity or condition of magnetic tape in inventories; (2) procuring magnetic tape with little regard to quantity discounts and other advantages that might be available through centralized procurement; and (3) accumulating large quantities of used tape without testing or attempting to rehabilitate it for possible further use either locally or in other Department of Defense (DoD) data processing installations.

The Draft Report indicates an apparent need for a more effective and coordinated Government-wide program for management of the procurement and utilization of magnetic computer tape and recommends as a practical and economically desirable more immediate corrective step, that the Secretary of Defense give consideration to establishing defense-wide control over the acquisition and use of magnetic computer tape. The Report acknowledges the fact that the Office of the Secretary of Defense and components of the department have recognized this need and that some action has been taken to establish centralized tape procurement and management programs, although the Report concludes that the problem of centralized management of all tape activity has not received adequate attention.

Your letter stated that the General Services Administration (GSA) is presently planning to establish Government-wide control over the procurement of certain types of magnetic computer tape by establishing prices directly with tape manufacturers and requiring that all such tape be acquired through Federal Supply Schedules at prices established by the GSA. The DoD is in full accord with recent action taken by the GSA to initiate a central program for the competitive procurement of 800 BPI 1/2 inch magnetic computer tape. The schedule under this competitive procurement became effective March 1, 1968 and its use is mandatory upon the DoD and all other agencies of the Executive Branch of the Government.

In addition to support of this centralized procurement action, this Office looks with favor upon GSA's forthcoming revision to Subchapter E - Supply and Procurement - of the Federal Property Management Regulations, which will set forth procurement sources and programs for centralized procurement of all electronic data processing tape. It is concluded that these current GSA efforts have overtaken the need for further actions to initiate a program for the centralized procurement of magnetic computer tape within the DoD.

Your report refers favorably to the Department of Air Force program for centralized management of magnetic tape activities which was established as a result of a 1964 study. Reference is also made to the centralized program which has been operational in the Defense Supply Agency since September 1966. The Department of the Army is currently in the process of establishing a centralized program similar to that maintained by the Air Force. This program is scheduled to be implemented on July 1, 1968.

The DoD has been working closely with the GSA in the development of a Government-wide program of tape cleaning and rehabilitation. As a first step, a Joint GSA-DoD Survey of ADP installations with magnetic tape capability was conducted. Survey data has been collected and is now being processed and analyzed by GSA. The DoD intends to continue working closely with GSA in development of a Government-wide program rather than initiating its own interim internal rehabilitation program.

This Office concurs in the need for a more positive program with respect to the screening and marketing of tape no longer needed by using installations. In this regard, action is underway to amend DoD Directive 4160.19,

"Reutilization Screening of Automatic Data Processing Equipment" dated August 12, 1964, to formalize the requirement for reutilization screening of computer magnetic tape. Our actions in this regard will be correlated to the extent required with the GSA.

The opportunity to comment on this report in draft form is appreciated.

Sincerely,

Thomas D. Morris

THOMAS D. MORRIS
Assistant Secretary of Defense
(Installations and Logistics)

GENERAL SERVICES ADMINISTRATION



Washington, D.C. 20405
MAR 11 1968

Mr. Irvine M. Crawford
Assistant Director, Civil Accounting
and Auditing Division
General Accounting Office
Room G-44, GSA Building
Washington, D. C. 20405

Dear Mr. Crawford:

This responds to your letter dated January 9, 1968, which transmitted your proposed report on examination into the control over procurement, utilization, and disposition of magnetic computer tape within the Department of Defense. We agree with the basic principle inherent in your report that magnetic computer tape is well suited to centralization.

Public Law 89-306 authorizes GSA to manage and purchase automatic data processing equipment on a centralized basis. In addition, the recent Comptroller General Decision (November 21, 1967) recognizes our exclusive procurement authority for ADP equipment and related supplies, which includes magnetic tape. We are proceeding accordingly.

We appreciate the opportunity given us to comment on the report.

Sincerely yours,

A handwritten signature in cursive script, appearing to read "J. E. Moody".

J. E. Moody
Acting Administrator

Keep Freedom in Your Future With U.S. Savings Bonds